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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/725,739

12/02/2003

Rudi Bartels

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21013

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08/28/2007

AGFA CORPORATION
PATENT DEPARTMENT
200 BALLARDVALE STREET
WILMINGTON, MA 01887

EXAMINER

ZHU, RICHARD Z

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

08/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,739

Applicant(s)

BARTELS, RUDI

Examiner

Richard Z. Zhu

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on applications EP 02102684.4 filed in European Patent Office on December 5th 2002. Certified copies of said European Application had been received.
2. Acknowledgment is made of applicant's claim for domestic priority based on US provisional application 60/432282 on December 10th of 2002. Said Provisional Application had been reviewed. No new matter is detected.

Objection to Minor Informality

3. As noted in the application bib data sheet, the name of the applicant on 60/432282 is spelled "Rudolf Bartels" whereas the oath and declaration and application data sheet of application 10/725739 spells "Rudi Bartels". Please take the necessary step to provide the correct spelling of applicant's name.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 22-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 22-26 defines a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a computer program can range from paper on

Art Unit: 2625

which the program is written, to a program simply contemplated and memorized by a person.

The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure. Please combine Claim 22 with 23, 24 with a modified variant of 23, and 25 with 26.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 14-15, 18, 20, and 22-24 are rejected under 35 USC 103(a) as being unpatentable over *Delabastita et al. (US 5766807 A)* in view of *Samworth (US 6118935 A)*.

Regarding Claims 1, 18, 20 and 22-23, *Delabastita* discloses a method for generating a screened representation of an image for printing said image (Fig 2 (c) and see Col 3, Rows 45-48), the method comprising:

generating a first dot of said screened representation (Fig 3, a plurality of first dots), wherein said first dot has a first dot size of at least one microdots (Col 8, Row 52, sizecounter = 1. This means that every halftone dot in the supercell has a minimum size of one microdot);

repeating said dot generation step until a first number (Fig 3 and see Col 7, Rows 10-20, a first number of 10 halftone dots are generated) of said first dots are generated;

Art Unit: 2625

arranging said first dots in a frequency modulated pattern (Col 7, Rows 30-31 and 39-65. A blue noise mask FM screening pattern is applied in step 1);

selecting a second number of second dots out of said first dots (Col 7, Row 66 – Col 8, Row 45, specifically, Col 8, Row 50, this algorithm is applied on all of the first number of halftone dots in the supercell), wherein said second number is at most equal to said first number (the second number of second dots == number of first number halftone dots) and larger than zero (second number of halftone dots = first number of halftone dots == 10 != 0); and

enlarging said second dots by adding at least one microdot to each of said second dots (Col 8, Row 59, the size of second dots are enlarged by a factor of one microdot at the end of each iteration of the algorithm);

a printing plate having a screened representation of an image for printing said image (Col 11, Rows 33-52);

However, *Delabastita* does not disclose that the size of a first number of halftone dots have to be at least two microdots.

It would've been obvious to one of ordinary skill in the art at the time of the invention to generate the first number of halftone dots with a size of at least two microdots. Applicant has not disclosed that a size of at least two microdots provides an advantage, is used for particular purpose, or solves a stated problem. One of ordinary skill in the art would've expected applicant's invention to perform equally well with minimum size of at least one microdot because the size of halftone dot does not negate the fact that the method of *Delabastita* generates a first number of halftone dots for the purpose of generating a screen

Art Unit: 2625

representation by applying a hybrid FM and AM screening base on halftone dot density (Col 4, Rows 1-7).

Finally, *Delabastita* does not disclose a data processing system, a computer program for executing the methods set forth in Claim 1, and a computer readable medium on which the program is rested.

Samworth discloses a data processing system (Fig 12, and see Col 8, Rows 3-10), a computer program (Fig 12, and see Col 7, Rows 15-26) for implementing a partially AM and partially FM Halftoning processing with FM being applied to highlight regions and AM being applied to darker regions (Fig 7), and a computer readable medium (Col 7, Row 35, RAM 55).

It would've been obvious to one of ordinary skill in the art at the time of the invention to implement the methods of *Delabastita* with the data processing system and computer program of *Samworth* whereas the motivation would have been to implement said method on a software to provide optimal programmability and to ensure high processing speed thus providing user with a convenient way of implementing the method of *Delabastita*.

Regarding Claims 2 and 24, *Delabastita* discloses the method further comprising: using a third number (Col 9, Rows 4-53, Step 3, using the remaining microdots out of total number of microdots of original 144 microdots), at most equal to said first number (remaining number of microdots depends on how many microdots were assigned in step 2, regardless, it can't be more than 144), of dots having said first dot size for reproducing portions of said image (Col 9, Rows 46-48 and see Col 10, Rows 43-46) having densities at most equal to a predetermined density (Col 10, Rows 1-33. The result of step 3 or FM

screening produces a portion of threshold matrix having a predetermined density, this in turn generates a portion of halftone image having the corresponding predetermined density);

and using said enlarged second dots for reproducing other portions of said image having densities larger than said predetermined density (Col 9, Rows 46-48 and see Col 10, Rows 1-33 and 43-46, Col 13, Rows 20-28. Dot size modulation or AM, as understood by the examiner, it is by adding microdots to the halftone dot thereby increasing its size with the intent to fill up the holes between halftone dots in order to generate a continuous tone image. Therefore, the step 2 of *Delabastita* generates a portion of threshold matrix that would be use to produce a corresponding portion halftone image whose density is larger than the portion produced by step 3 due to the increasing size of halftone dot and thus number of microdots).

Regarding Claims 14-15, *Delabastita* discloses exposing a printing plate precursor according to said screened representation of said image (Col 11, Rows 33-52).

7. Claims 3-13, 16-17, 19, 21, and 25-26 are rejected under 35 USC 103(a) as being unpatentable over *Delabastita et al.* (US 5766807 A) and *Deschuytere et al.* (EP 0642259 A2) in view of *Samworth* (US 6118935 A).

Regarding Claims 3 and 6, *Delabastita* discloses the method further comprising: generating a threshold mask array for said frequency modulated pattern (Col 7, Rows 30-38, Steps 1-4 and see Col 9, Row 45 - Col 10, Row 41, specifically, Col 9, Rows 46-54).

Art Unit: 2625

Delabastita does not disclose subdividing said threshold mask array into a plurality of parcels wherein each of said parcels has a parcel size larger than said first dot size.

Deschuytere discloses subdividing a threshold mask array into a plurality of parcels wherein each of said parcels has a parcel size larger than said first dot size (**Fig 2, and see Col 7, Rows 15-31. The parcel size contains at least 2 x 2 microdots whereas the first dot size is at least one microdot in size).**

It would've been obvious to one of ordinary skill in the art at the time of the invention to subdivide the threshold matrix of *Delabastita* into parcels with a predetermined parcel size of EndSize larger than a predetermined BeginSize, as suggested by *Deschuytere* whereas the motivation would've been to "optimizes uniformity of the halftone dot distribution, while the local randomization suppresses artifacts due to subject moiré" (*Deschuytere*, Col 6, Rows 16-18).

Regarding Claims 4 and 7, *Delabastita* discloses enlarging said second dots (Col 8, Rows 49-62, specifically, $\text{sizecounter} = \text{sizecounter} + 1$ and see Col 13, Rows 45-47) to fill the holes between the halftone dots (Col 13, Rows 23-24. The results of AM screening produces the portion of halftone images with enlarged dots that attempt to fill the holes between halftone dots. Compare Fig 2(c) with Fig 2 (a) and (b)).

Regarding Claims 5 and 8, *Delabastita* discloses generating additional dots having said second dot size (Col 10, Rows 42-47, when a threshold hold matrix is generated using second dot size and third dot size, the portion of halftone image will be turn on or generated in accordance to the second dot size).

Art Unit: 2625

Regarding Claims 9, 19, 21, and 25-26, *Delabastita* discloses a method for generating a screened representation of an image for printing said image (**Fig 2 (c) and see Col 3, Rows 45-48**), the method comprising:

generating a threshold mask array for a frequency modulated pattern (**Col 7, Rows 30-38, Steps 1-4 and see Col 9, Row 45 - Col 10, Row 41, specifically, Col 9, Rows 46-54**);

generating a first number of first dots of said screened representation in said threshold mask array (**Fig 8, and see Col 10 Rows 42-48 and Col 11, Rows 14-16**), wherein each of said first dots has a size of $\text{BeginSize} \times \text{BeginSize}$ microdots with BeginSize at least equal to one (**Col 11, Rows 14-16, at least one microdot is turned on as result of the comparison**) and smaller than a predetermined EndSize (**Col 10, Rows 34-41 and 43-46 and see Fig 2, the number of halftone dots per unit area is progressively increased and halftone dot size with a predetermined EndSize (Fig 2(c)) that is larger than BeginSize (Fig 2(a)) and see Col 13, Rows 20-24**).

a printing plate having a screened representation of an image for printing said image (**Col 11, Rows 33-52**);

However, *Delabastita* does not disclose that the size of a first number of halftone dots have a BeginSize of at least two microdots.

It would've been obvious to one of ordinary skill in the art at the time of the invention to generate the first number of halftone dots with a size of at least two microdots. Applicant has not disclosed that a size of at least two microdots provides an advantage, is used for particular purpose, or solves a stated problem. One of ordinary skill in the art would've

Art Unit: 2625

expected applicant's invention to perform equally well with minimum size of at least one microdot because the size of halftone dot does not negate the fact that the method of generates a first number of halftone dots for the purpose of generating a screen representation by applying a hybrid FM and AM screening base on halftone dot density (**Col 4, Rows 1-7**).

Furthermore, *Delabastita* does not disclose subdividing a threshold mask array into a plurality of parcels wherein each of said parcels has a parcel size of EndSize x EndSize microdots.

Deschuytere discloses subdividing a threshold mask array into a plurality of parcels wherein each of said parcels has a parcel size of EndSize x EndSize microdots (**Fig 2, and see Col 7, Rows 15-31**).

Delabastita and *Deschuytere* both disclose method for Frequency Modulated Halftoning process.

It would've been obvious to one of ordinary skill in the art at the time of the invention to subdivide the threshold matrix of *Delabastita* into parcels with a predetermined parcel size of EndSize larger than a predetermined BeginSize, as suggested by *Deschuytere* whereas the motivation would've been to "optimizes uniformity of the halftone dot distribution, while the local randomization suppresses artifacts due to subject moiré" (*Deschuytere, Col 6, Rows 16-18*).

Finally, *Delabastita* and *Deschuytere* does not disclose a data processing system, a computer program for executing the methods set forth in Claim 9, and a computer readable medium on which the program is rested.

Samworth discloses a data processing system (Fig 12, and see Col 8, Rows 3-10), a computer program (Fig 12, and see Col 7, Rows 15-26) for implementing a partially AM and partially FM Halftoning processing with FM being applied to highlight regions and AM being applied to darker regions (Fig 7), and a computer readable medium (Col 7, Row 35, RAM 55).

It would've been obvious to one of ordinary skill in the art at the time of the invention to implement the methods of *Delabastita* and *Deschuytere* with the data processing system and computer program of *Samworth* whereas the motivation would have been to implement said method on a software to provide optimal programmability and to ensure high processing speed thus providing user with a convenient way of implementing the method of *Delabastita* and *Deschuytere*.

Regarding Claim 10, *Delabastita* discloses the method further comprising:

selecting a second number of second dots out of said first dots (Col 7, Row 66 – Col 8, Row 45, specifically, Col 8, Row 50, this algorithm is applied on all of the first number of halftone dots in the supercell), wherein said second number is at most equal to said first number (the second number of second dots == number of first number halftone dots) and larger than zero (second number of halftone dots = first number of halftone dots == 10 != 0); and

enlarging said second dots by adding at least one microdot to each of said second dots (Col 8, Row 59, the size of second dots are enlarged by a factor of one microdot at the end of each iteration of the algorithm).

Regarding Claim 11, *Delabastita* discloses enlarging each dot of said first number of first dots to a size of $\text{maxsizecounter} \times \text{number of microdots assigned to the halftone dots}$ (Col 8, Rows 50-60).

Regarding Claim 12, *Delabastita* discloses generating additional dots having a size of to $\text{maxsizecounter} \times \text{number of microdots assigned to the halftone dot}$ (Col 10, Rows 42-46, additional dots generated base on such threshold matrix will turn equal number of microdots on when comparison is made with the threshold).

Whereas $\text{EndSize} = \text{maxsizecounter}$ and $\text{Endsize} = \text{number of microdots assigned to the halftone dot}$.

Regarding Claim 13, *Delabastita* discloses $\text{BeginSize equals one}$ (Col 8, Row 52, $\text{sizecounter} = 1$) and $\text{Endsize equals four}$ (Col 9, Row 3).

It would've been obvious to one of ordinary skill in the art at the time of the invention to generate halftone dots with a BeginSize of two and Endsize of three. Applicant has not disclosed that a BeginSize of two and Endsize of three provides an advantage, is used for particular purpose, or solves a stated problem. One of ordinary skill in the art would've expected applicant's invention to perform equally well with halftone dot size of *Delabastita* because the size of halftone dot does not negate the fact that the method generates a number of halftone dots for the purpose of generating a screen representation by applying a hybrid FM and AM screening base on halftone dot density and tone levels (Col 4, Rows 1-7).

Regarding Claims 16-17, *Delabastita* discloses exposing a printing plate precursor according to said screened representation of said image (Col 11, Rows 33-52).


Art Unit: 2625

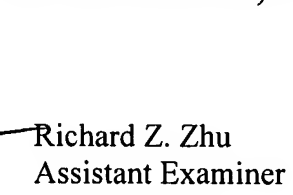
Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5721625 A, US 5740279 A, US 6441923 B1, US 6445465 B1, US 6741735 B2, and US 7099049 B2 discloses method for generating partially AM and partially FM Halftoning screens to reduce artifacts.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to King Y. Poon whose telephone number is 571-272-7440 and Richard Z. Zhu whose telephone number is 571-270-1587. The examiners can normally be reached on M-F, 8:00 - 4:30.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RZ²
08/17/2007


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